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COLONY OF MAURITIUS.

ANNUAL REPORT

ON THE

DEPARTMENT OF AGRICULTURE

FOR

1916.

MAURITIUS.
—
THE GOVERNMENT PRESS.
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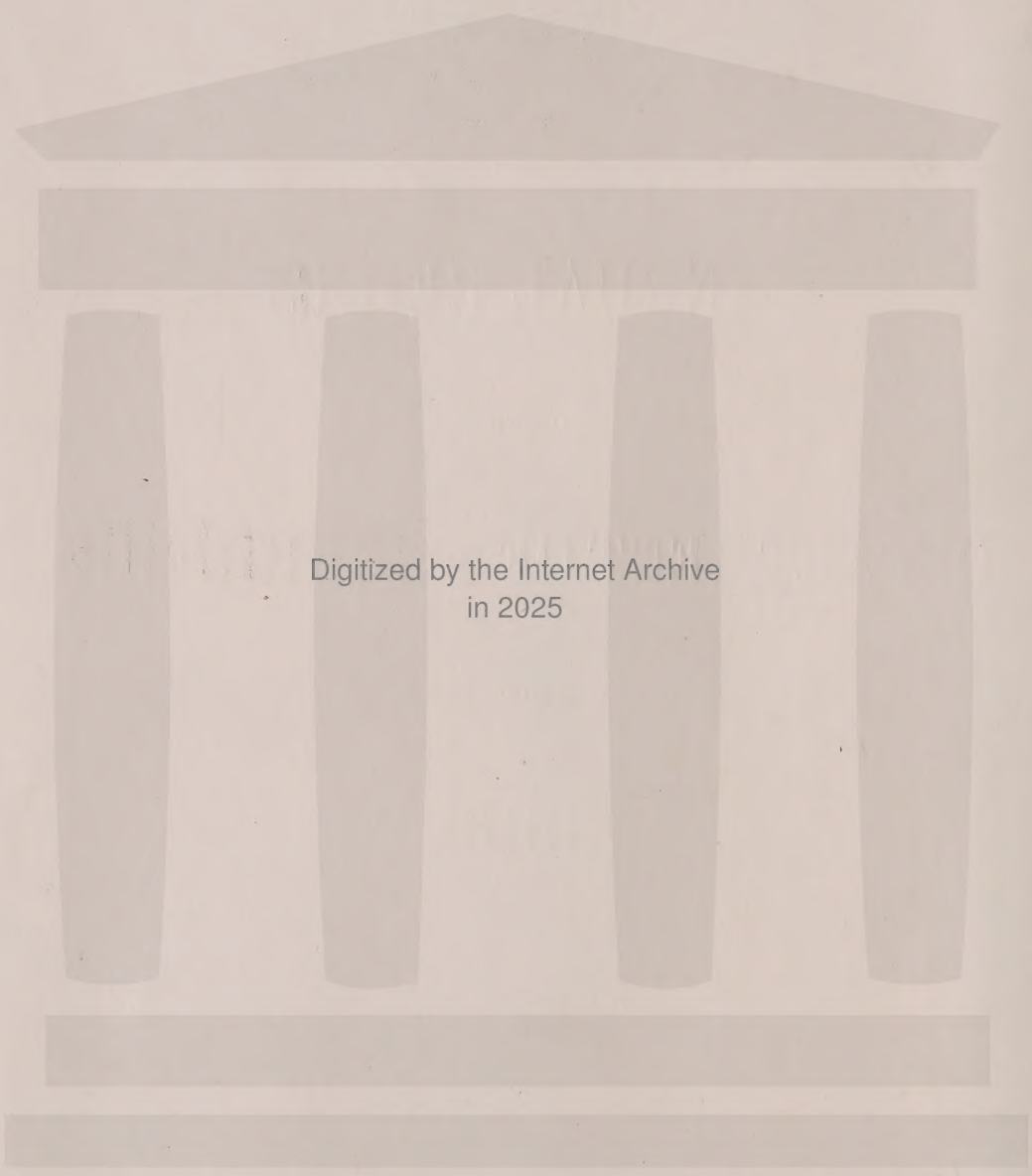
1917.



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COLONY OF MAURITIUS.

ANNUAL REPORT

ON THE

DEPARTMENT OF AGRICULTURE

FOR 1916.

No. 578.

THE HONOURABLE

THE COLONIAL SECRETARY,

I have the honour to forward the Annual Report for 1916 on the Department of Agriculture and Agriculture in Mauritius.

SECTION I.

AGRICULTURE IN MAURITIUS, 1916.

2. The cost of all materials was very high, some articles (e.g. boiler-tubes) could only be obtained with difficulty. There were delays due to factories in Europe being occupied with war work and to freight not being available.

The sugar was sold, after negotiations between the Chamber of Agriculture and the Royal Commission on Sugar Supplies, at prices ranging from 17/4 to 18/–. The bulk of the sugar was sent to France where there was a shortage of sugar available for consumption.

The general quality of the sugar produced was not of such a high standard as the year previous owing to the effect that the cyclone of May had upon the juices. Juices were poor, fibre content in many cases low, extraction low, and the general work in the factory not up to the same standard as when juices are of good quality.

Climate.

November	1915	Dry.
December	„	Rainfall low except in Grand Port and Savanne.
January	1916	Rainfall abnormal, temperature low, sunshine low.
February	„	Temperature low at beginning of month. Rainfall below normal, sunshine low.
March	„	Temperature normal. Rainfall very low. Sunshine above normal.
April	„	Temperature slightly low. Rainfall above normal, sunshine below normal.
May	„	Temperature normal. Rainfall favourable. Sunshine normal. (Severe cyclone on May 26th causing damage to crops in all parts of the island except extreme North).
June	„	Rainfall above normal, coast belt.
July	„	Rainfall low and temperature very low. Sunshine low.
August	„	Temperature variable. Rainfall low and irregularly distributed. Sunshine low.
September	„	Rainfall good except parts of Flacq.
October	„	Rainfall above the normal everywhere.
November	„	Exceedingly dry everywhere.
December	„	Exceedingly dry everywhere.

The season has been somewhat cold. Favourable months for growth were followed by periods of shortage of rainfall. Cyclonic storms at the end of December and early January resulted in good rain and vegetation was satisfactory. The end of February and the month of March were dry and somewhat cold. April and May however were favourable and at the time of the occurrence of the unprecedented cyclone of May 26th the estimate for the sugar-crop was 260,000 tons. The cyclone caused in some parts considerable weakness of canes and stopped the vegetation of ratoons. The estimate of reduction of the crop over the whole island was lowered from 260,000 previous to the cyclone to 216,000 tons afterwards. The reduction in some parts has reached 25% while in the northern parts of the island little or no damage resulted. The total crop made was finally about 208,000 tons.

From many estates, reports have been made that the stoppage of vegetation after May 26th has been almost complete. On others yields have come up to expectation especially where the grande saison virgins were large. The juices have been uniformly bad and the loss in extraction in the factories heavy.

Cane Varieties.

The seedlings M.P. 131 and M.P. 55 are still doing well, the former particularly in ratoons. D.K. 74 is gradually being extended and is giving satisfactory results.

Of other varieties there has been some demand for Sealy Seedling, D. 117 and Red Mauritius, while the new cane Silva after satisfactory results in Flacq district is being gradually extended. The two St. Aubain seedlings and B. 3390 are also in demand, the latter particularly having given promising results in the northern districts.

The new sports of White Tanna are very little if any better than the parent White Tanna while Java and Yellow Caledonia are similar to if not identical with White Tanna.

Cane seeds were very fertile in the northern district, and over 2,900 new seedlings were obtained and planted at Pamplemousses.

Machinery.

There was not much done in the way of importation of new machinery, but a marked advance along the lines of mechanical unloading of canes at the factory has been made by the erection of 8 hoist derricks. Most of them are fitted with additional grabs so that loose canes can be transferred direct from railway trucks without the necessity of tying in packets.

With the increasing scarcity of labour the use of mechanical implements for tillage is bound to come into prominence at an early date, and two or three estates have already made trials, where the land is suitable, with ploughs. The value of good plough oxen has increased considerably of late years.

Subsidiary Industries.

Fibre :—From January to April 1916 trial runs were made with the New Corona Decorticating Machine which had been erected in 1915 by the Government at Médine Estate. As a result 124,770 kilos of leaves of Furcraea and 123,108 kilos of Agave leaves were handled, and a yield of 2.2% and 2.87% dry fibre respectively obtained, a satisfactory result when compared with the results of the same machine in other places. The yield of dry fibre with Furcraea is below that yielded by local " grattes " but the product is of better quality and markets at a higher price.

The finished product was shipped through Messrs. Rogers & Co., and marketed in London. The buyers report that the Sisal fibre " resembles best Sisal and the outlet is unlimited if the island could replant with this. We feel sure that the result would be to place Mauritius as a leader in the market ". The Furcraea was classed as prime, and buyers reported on it as " long, clean, chiefly good colour, here and there a little dull ". The Sisal sold in July 1916 at £51.5 per ton and the Furcraea at £48.10, actual valuations from experts being £53–54 and £49.— c.i.f. London.

The high prices ruling for fibres during the year were offset by the great increase in freight charges, but in spite of this remunerative prices are obtained locally and a certain quantity of good fibre turned out.

Maize :—Early in the year the question of making provision for efficient drying of maize was considered, and in August His Excellency the Governor laid before the Council of Government proposals for the erection of a maize-drying machine. The machine with accessories has been ordered and will be erected in the Grand Port district.

Tobacco :—In September His Excellency the Governor decided to obtain the services of an expert tobacco grower and curer from Réunion and to make definite trials with this crop. The expert arrived in October and by the end of the year the following areas were planted, the variety being that known as "Itabac bleu" from which the ordinary Réunion tobacco is prepared :—Pamplemousses Gardens 2 acres, Riche Terre 3 acres, Barkly Asylum ¼ acre.

This variety of tobacco appears to be remarkably uniform in type and is also hardy and quickgrowing.

Stock :—After negotiations which lasted nearly 2 years the Government secured several fine bulls and cows of Indian breeds and these arrived during the year and were placed at Réduit under the care of this Department. The animals received were :—

Hissar breed ...	...	8 bulls.
		6 cows.
Mysore breed...	..	2 bulls.
		2 cows and one calf.
Ongole (Nellore)	...	1 bull.
		1 cow and one male calf.

Of the above animals 5 Hissar bulls and 3 Hissar cows were sold to local estates as soon as the necessary period of quarantine had elapsed.

All these animals are fine specimens, the Ongole bull in particular exciting much admiration, and this animal and the Hissars have been in much request in spite of the outbreak of Foot-and-Mouth disease which was by some persons attributed to the importation of these Indian cattle.

A Holstein-Frisian bull and heifer were obtained from South Africa late in 1915, and the bull has been in much request for purposes of service among dairy herds.

Five large Punjabi goats were imported along with the Hissar cattle and have since been loaned to several estates. These animals are purely a meat breed and there still therefore remains room for introduction of a good strain of milch-goats.

Dipping Tanks.

Several estates are planning to instal dipping tanks in 1917, and the Government has approved of plans for the installation of a quarantine station with dipping and isolation facilities at Port Louis so as to minimize the risk of introducing diseases by means of imported animals.

Towards the end of the year plans were made for building a dipping tank at Réduit at which the animals of the Department and perhaps those of neighbouring estates may be treated.

Foot-and-Mouth Disease.

In September there was an outbreak of this disease in the district of Flacq and since then it has spread over all the central districts of the island. So far, the southern districts have been free and very few cases have occurred in the northern districts.

The disease has been remarkably benign and only in cases of very young animals has the mortality been other than negligible. At the date of this report there are no outbreaks of the disease, and it is hoped that the measures of prevention adopted will lead to its disappearance.

The occurrence of the disease may be summed up as follows :—

District.	No. of Properties infected.	No. of Animals affected.	Animals compulsorily slaughtered.
Flacq	10	1,243	114
Moka	9	296	43
Grand Port	1	1	1
Black River	8	412	Nil
Rivière du Rempart ...	4	386	Nil
Pamplemousses ...	2	231	Nil
Plaines Wilhems ...	22	659	Nil
	56	3,228	158

Registration of Chemists.

The first examination held under the Ordinance for Registration of Agricultural Chemists in the Colony took place in July, and three candidates presented themselves. All passed, the papers on laboratory work and on sugar house control and analysis being particularly satisfactory.

SECTION II.

WORK OF DEPARTMENT OF AGRICULTURE, 1916.

There were no widespread epidemics of fungoid disease during the year, but root-disease of sugar cane occurred to a certain extent on some estates in Flacq : remarks in this connection may be seen in the Phytopathological report (Annexure I). Pithy deterioration of Tanna varieties which is not yet fully understood still occurred to a large extent.

The investigations into the camphor-yielding properties of local camphor-trees were brought to a conclusion by the Chemical Division, and it may be taken as certain that no recoverable camphor is to be found in the trees of the Colony. All the trees examined yielded fair quantities of oil containing dissolved camphor in small amount, and it appears probable that the local trees are of a strain which does not yield crystallisable camphor.

The Entomological Division made fairly extensive trials with Eri silk worms (Attacus sp.) imported from Pusa. Owing to disease (Pebrine and flacherie) the worms died in large numbers and, although 5 generations were reared during the year, by December all had died. New supplies of cocoons, if possible from non-infected sources, are being ordered from India.

The collection and destruction of Phytalus beetles was continued in 1916 and about 66 million beetles were destroyed as compared with about 59 million in 1914. The most satisfactory point in this connection is the discovery early in the year that the wasp parasitic on Phytalus (Tiphia parallela) had succeeded in establishing itself in the district and was to be found in large numbers on the weed known as Herbe Condé (Cordia interrupta). This is a most gratifying result of the repeated attempts during the past 3 years to import this parasite from Barbados and establish it here.

The outstanding event in veterinary matters during the year has been the outbreak of foot-and-mouth disease in Flacq district and the rapid spread over the central parts of the Colony. For several months this demanded the exclusive attention of the Government Veterinary Surgeon and prevented him from continuing his investigations into tuberculosis of bovines. The tuberculin test was applied, however, to 10% of the cows near the capital with negative results, while one herd in Rivière Noire district shewed over 30% suspected cases. These useful tests should be repeated in future years and steps taken to weed out all infected animals.

In the report by the Statistician (Annexure No. V) the principal points noted are the reduction of livestock in the Colony and the gradual increase of cane cultivation. The former is attributed partly to the high price of cattle-food and the consequent desire of small owners to get rid of their animals, a theory which is borne out by the fact that cattle owned by large estates have not decreased while a marked reduction in the number of animals owned by peasants took place.

The demonstration plots conducted in connection with Co-operative Credit Societies by the Agricultural Instructor have given several useful results, and have shewn themselves to be useful centres for introducing new methods and new varieties of plants to the smaller owners of the Colony. At Montagne Longue the value of *fumier* applied to canes at the correct time was demonstrated, and a considerable modification of the local methods of planting potatoes brought about successfully, the latter resulting in higher yields and less expense. Spraying of potatoes with Bordeaux mixture was watched with interest by the small owners of Montagne Longue. At Triolet plot situated in a very dry belt a demonstration was made which showed that sweet potatoes and manioc were more suitable and more profitable than canes where irrigation is not feasible.

Examination of Plant Imports.

Importations of plants have been regularly examined by the scientific officers of the Department. 22 packages of plants and cuttings and 240 cases of fruits were examined at the Customs, and 70 packages of plants and bulbs and 3 cases of fruits were examined at the Post Office during the year.

Publications.

The following bulletins were prepared during the year :—

General Series, 7. *" Animal Diseases Regulations "*.

(This bulletin contains the Consolidation Ordinance and the Regulations in force in Mauritius against animal disease as remodelled during 1915, and also short notes by the Government Veterinary Surgeon on the diagnoses of the diseases.

Scientific Series 4. *" Investigations on The Camphors of Mauritius "*.

(In this bulletin are recorded the results of the investigations made by the Imperial Institute and Kew Gardens in England, and the Department of Agriculture in Mauritius, on the yields of camphor and camphor oils of the existing camphor trees of Mauritius).

Scientific Series 5. *" Borers affecting Sugar-Cane in Mauritius "*.

(The Entomologist here passes under review the various borers that attack the sugar-cane in Mauritius and the remedial measures to be adopted for their control).

The following special leaflets were prepared for the Board of Agriculture and for distribution to planters :—

1. Results of Tuberculin Tests on milch cows in Port Louis.
2. Work of New Corona Fibre Machine.
3. Sale of New Corona Aloe Fibre at London.
4. Phytalus Smithi Survey, 1916.
5. The Corn Industry and Kiln Drying of Maize.
6. Outbreak of Foot-and-Mouth Disease.

A circular was also addressed to all agriculturists relative to the treatment of Surra.

Legislation.

The following Ordinances and Regulations relating to Agriculture were passed during the year :—

Ordinance No. 13 of 1916 :—To amend Co-operative Credit Societies Ordinance No. 4 of 1913.

" " 18 of 1916 :—To amend the Animal Diseases (Consolidation) Ordinance, 1915.

Regulations re Animal Diseases :—Adding "Infectious Ulcerative Stomatitis" to the list of diseases mentioned in article 1 of Ordinance No. 11 of 1915.

" " " :—Amending the Regulations re : Foot-and-Mouth Disease.

" " Pasturage of Cattle and impounding of animals in Rodrigues.

Staff changes and leaves of absence.

Mr. F. A. Stockdale, Director of Agriculture, was on leave of absence in Réunion from the 17th of July to the 26th of September. Soon after his return to work he was appointed Director of Agriculture in Ceylon and left for that Colony on the 22nd November. Dr. H. A. Tempany, Superintendent of Agriculture, Antigua, has been appointed to replace him.

Mr. P. de Sornay, Assistant Chemist, resigned his appointment on the 30th of June. It has been decided to abolish his post and to create two Scientific Assistantships.

Mr. Pierrot, Writer, also resigned during the year, and was replaced by Mr. Y. Lefébure as from the 10th October.

Expenditure.

The Expenditure of the Department has been as follows :—

Personal Emoluments	Rs.	47,718.03
Maintenance of Gardens		11,579.90
General Services		10,788.65
Prevention of Plant Pests and Diseases ...		20,614.47
„ „ Animal Diseases		9,691.06
Experiments with Aloe Fibre		2,947.38
Upkeep of Stock		2,741.82
Establishment of Demonstration Plots ...		2,133.59
Upkeep of Experimental Dairy		3,785.40
Subvention to Société Horticole		500.00
Travelling Expenses...		4,061.14
Special : New Corona		1,038.11
„ Importation of Stock		5,941.47
„ Experimental Cultivation of Tobacco		1,512.43
„ Minor charges on purchase of 3 motor-cycles		6.88
	Rs.	125,060.33

Receipts.

The receipts were as follows :—

Analytical Fees	Rs.	249.00
Veterinary Fees (Customs, Analyses) ...		1,084.00
Students' Fees		187.50
Rent of Tea Plantation		1,100.00
Sale of Canes		5,763.65
„ „ Plants, Flowers, &c., ...		1,240.52
Services and Sale of Animals and Poultry ...		962.00
Miscellaneous		63.72
	Rs.	10,650.39

GILBERT AUCHINLECK,

19th March, 1917. Acting Director of Agriculture.

ANNEXURE I.

REPORT ON THE WORK OF THE DIVISION OF

PHYTOPATHOLOGY.

No serious epidemics of fungus diseases occurred throughout the year. The cyclone of May 26th caused serious damages to crops and a large part of the vegetable and potato crops perished either as the direct result of the cyclonic winds or from attacks by fungi or bacteria during the month of June. The cane crop was on the whole healthy. Root-disease was common on a few estates and the pithy deterioration of the Tanna varieties was general throughout the Colony.

Sugar Cane.

There is little of importance to report. *Root-disease* was reported from estates in Flacq as causing considerable damage and remedial measures were advised. The incidence of this disease should be carefully watched, as there has been a general spread, during the past few years, of root-diseases in all sugar-cane growing countries. It can be controlled by the use of rotation of crops or assolements to starve out the fungus and by the judicious use of heavy applications of quick-lime. When once the disease has become thoroughly established in a sugar-cane field, it is advisable to throw the field into beans or indigo for a number of years, and to stump out or burn all remnants of old cane stools.

Red Rot was not reported during the year and *Pithy deterioration* of the stem was common in all Tanna varieties. This last named disease was also seen on all Tanna varieties grown in Réunion.

Sugar.

Complaints from local manufacturers of lemonade showed that it was desirable to investigate the bacterial and fungal flora of local sugars and of syrups made therefrom. These investigations were carried out with the assistance of the Assistant Chemist, and resulted in the isolation of several bacteria from the local sugars. This was an expected result as all raw sugars contain some and often several kinds of bacteria. Experiments showed that these bacteria could readily be killed by means of heat in making up syrups. Double boiling of syrups always gave a sterile residue, while sterilization of the syrups under pressure gave similar results.

In all faulty lemonades a yeast was detected and it was probable that this yeast gave rise to the difficulties in keeping locally prepared syrups at several aerated-water factories.

Potatoes and other Solanaceous plants.

Further experimental trials with spraying with Bordeaux mixture for the control of leaf disease caused by *Phytophthora infestans* were carried out during the year. Good results were, in many cases, recorded, but it was found difficult to make small planters realize that spraying should be used as a preventive measure and not as a cure. When crops of potatoes were badly affected their owners applied to have them sprayed. In many cases these applications were too late, and in others the results were not so successful as they would have been if spraying had been carried out as a preventive measure some two weeks previously. The spraying experiment will however be continued as there are signs that their results are being watched by some with great interest. After the cyclone of May 26th a large number of potatoes died from the effects of a collar rot. It is probable that bruising of the stem during the cyclone made the entry of the causative fungus possible. Trials with the application of powdered Bordeaux mixture around affected plants did not give entirely satisfactory results.

Pistache.

A collar disease caused by a species of *Fusarium* was common in all parts of the island. It was successfully controlled at Réduit, Pamplemousses and at Montagne Longue by dusting a mixture of powdered copper sulphate and lime around the affected plants—the solution of the substances being effected by means of rain.

Miscellaneous.

The blister leaf-curl disease of peach leaves caused by *Exoascus deformans* was examined during the year. This disease is present on all peach trees growing on the higher plateaux of the island of Réunion.

F. A. STOCKDALE,

October 31st 1916. Phytopathologist.

ANNEXURE II.

REPORT ON THE WORK OF THE DIVISION OF

CHEMISTRY.

During the year the following analyses were carried out for agriculturists :

	Samples.	Dosages.
Artificial Manures	21	45
Farmyard Manure	14	59
Lime	3	3
Sugar-house products ...	14	40
Miscellaneous	14	66
	66	213

The fees for the above amounted to Rs. 249.

Analyses in connection with Departmental work were as follows :—

	Samples.	Dosages.
Manures	49	60
Soils	15	140
Cane juices	918	2,754
Milks	27	162
Rain waters	22	66
Essential oils	5	5
Miscellaneous	1	4
	1,037	3,191

The samples of manures and sugar-house chemicals sent from the Customs for analysis were made up as follows :— Whale flesh 4 ; sulphate of ammonia 20 ; nitrate of soda 1 ; superphosphate 5 ; meat meal 4 ; dried blood 6 ; sodium phosphate 2 ; precipitated phosphates 1 ; bone flour 2 ; prepared fertiliser 2.

The following table of average composition of mixed fertilisers during the past 4 years shews the almost complete absence in 1916 of potash salts as a result of the war :—

Average composition of Guanos mélangés.

	Total Nitrogen %.	Total Phosphoric acid %.	Potash %.
1913...	11.20	13.27	7.11
1914 (Jan. to July)...	9.70	10.02	6.50
„ (Aug. to Dec.)	11.39	9.40	6.85
1915...	9.23	9.11	4.19
1916...	10.50	7.00	.35

Sulphates of ammonia analysed in 1916 were on the average purer than in former years, thus the nitrogen content in 1914 was 20.3%, in 1915, 20.29% ; and in 1916, 20.62%.

Soils.

The soil survey was continued and samples examined in the Riche-En-Eau-Cent Gaulettes valley, in all 15 samples from 4 estates having been examined. The results of these analyses and of the analyses of the Pas Géométriques were published in 1916 in the form of circulars.

Arrangements were made for carrying out regular readings of soil temperatures at various depths but owing to shortage of apparatus the records are not as complete as they should be.

Camphor Trees.

In February and March the investigations into the camphor bearing properties of local trees were brought to a close and later the results were published in bulletin form. In all there were 22 distillations carried out in the laboratory and in no case was there any recoverable camphor formed, from .6 to 3% of oil being obtained from stems, roots, twigs and leaves. On the whole we are justified in assuming that the local variety contains no recoverable camphor, and that the absence is probably not caused by factors such as elevation, climate, &c.

Educational.

In May the 1st and 2nd year examinations for students were held, and as a result students passed and immediately obtained work in sugar estate laboratories. Two new students entered in April as the result of a competitive examination.

In July three candidates entered for and passed the examination (final) for registration of Agricultural Chemists.

In all twelve students worked in the Chemical laboratory ; their accommodation was possible owing to the completion during the year of the new chemical and botanical laboratories.

The five students of the 2nd and 3rd year standing were all attached to sugar-house laboratories during the cane crop.

Staff.

On July 1st Mr. de Sornay, the Assistant Chemist, resigned his post to take up an appointment with a private firm. Mr. Gébert, one of the senior students, was appointed to act as Scientific Assistant for Chemistry from that date until December 31st.

GILBERT AUCHINLECK,
Chemist.

ANNEXURE III.

REPORT OF THE WORK OF THE DIVISION OF

ENTOMOLOGY.

Collections.—As in previous years the collection of insects injurious to plants and of those affecting domestic animals together with their natural enemies was enlarged in 1916.

A great number of insects of economic importance were submitted to the Imperial Bureau of Entomology for identification.

Much time has been devoted to photographing of pests and of plants attacked by them.

Field Inspections.—Visits were frequently paid to sugar estates and other places for various investigations and especially for the control of borers and moutoucs.

The use of maize as a trap plant was adopted by many sugar estates and the work was carefully supervised by the Entomologist and has proved most successful.

Poultry Diseases.—The causes of the high mortality that has been

prevailing for the last three years on pure strains of fowls and chiefly on the Leghorn (White) and Minorca have been investigated into.

It has been ascertained that the chickens were dying from the attacks of various intestinal parasites, the chief of which being *Coccidiosis* (Coccidium gallinarum), Worm infection of the gizzard, proventriculum, duodenum—*Dispharagus spiralis* ? *Heterakis* (2 different species).

These diseases can be detected by the microscopical examination of fæces in which the Coccidia and the eggs of the worms are found in great numbers. They are highly infectious and are contracted directly from the previously infected soil ; they can be cured by appropriate treatment : Semen contra, turpentine, Catechu, Calomel and by measures of segregation. Full information will be published in a special bulletin at a later date.

Sericiculture.—Eri silk-worms were received from Pusa with a view to ascertaining whether it would prove to be a profitable minor industry in this Colony. The worms were reared at Réduit, Pamplemousses and Phœnix up to the 5th generation from January to November.

Further investigations are necessary before any definite conclusion can be drawn.

Orchard Pests.—Besides the common garden and orchard pests that have been mentioned in previous reports, the Mango trees at Mahébourg have suffered much from *Lecanium mangiferae* (Scale insects) and in Port Louis through the attacks of a Cecidomyid fly which lays its eggs in the tissue of the tender leaves and stems, forming thus innumerable special galls which interfere most seriously with the normal growth of the plant.

Sugar Cane.— The Gros Moutouc (*Oryctes tarandus*) has again been reported as seriously affecting the sugar cane on several sugar estates. On one of them where the infection was most severe Rs. 18,000 have been paid by the estate as premium for its destruction.

Lachnosterna sp.—The yellow headed moutouc was reported damaging the sugar cane at Bega. The beetles were caught at night and the larvæ thoroughly dug out. These measures coupled with the presence, in the infected fields, of Scolia *Elis rufa*, a scoliid wasp which is its natural enemy, succeeded in limiting the extent of the pest.

Elis rufa.—The life history of this wasp has been worked out and its value as a natural enemy to the two species of Lachnosterna existing in the Colony was pointed out in a report to the Board of Agriculture. It has been distributed in large numbers on the sugar estates where moutoucs are considered as a pest to the sugar cane.

Phytalus Smithi.—The usual survey was made in April and May. The results were communicated to estates within the infected area. The infection was found to be less intense at the Mount in 1916 than in 1915. At Mon Rocher the number of larvæ per arpent has again greatly decreased when compared with 1915. At Petite Rosalie a spread of the infection has been noticed but the number of larvæ is still small. All fields showing an infection of 15,000 per arpent or over have been dealt with and resulted in the destruction of 2,500,000 larvæ. About 66 million beetles were destroyed in 1916 by the usual means.

Typhia parallela.—The establishment of this wasp that was imported from Barbados for controlling the Phytalus pest was reported in June last to the Board of Agriculture. It has since spread over a larger area and was noticed in great numbers on *Cordia interrupta* (Herbe Condé) the food plant of the adults. A few couples were transferred in September to the Mount Estate with satisfactory results.

Root Disease.—Root disease of the sugar cane was again noticed on several occasions.

At Savanne, the D. K. 74 was seriously smitten with this fungus (Marasmius sp.) whilst in Plaines Wilhems the 55 and the Badilla were attacked with equal severity.

Lime at the rate of 1 lb. per stool was recommended and proved to be an effective remedy. Straw burning after the harvest was also suggested as a means of control.

D. D'EMMEREZ DE CHARMOY,

31st January, 1917. Entomologist.

ANNEXURE IV.

REPORT OF WORK OF

VETERINARY DIVISION FOR 1916.

Importation of Animals.

During the year 1916, 39 steamers and schooners have been inspected for introduction of animals in the Colony. In a few cases dogs not accompanied with certificates have been placed in quarantine for a period of 4 months, with weekly inspections of these animals. Amongst animals imported from South Africa, ex *Umvoti* three horses were suspected for glanders—these animals were placed in quarantine at Bradshaw's Veterinary Establishment and all of them tested with mallein ; one horse reacted, the animal was shot and thrown out to sea, the stables disinfected and manure, hay, straw, litters, manger, &c., burnt under the Department's supervision. Relative to Rodrigues 2 pigs have been tested for tuberculosis and horses and dogs controlled for Surra before importation in that dependency.

Inspection of Government Animals.

Animals of the different Departments were examined once a week.

A donkey of the Barkly Asylum was treated for Bronchitis and recovered. Animals of the Medical and Health Department were treated for Laminitis and Limping : they recovered, except a donkey which was shot for extensive bruising.

The animals of the Agricultural Department were in good condition. One ewe died of Pleuresia, and two rams recovered from Sheath disease and Paraplegia.

Horses of the Police were tested for the following affections : Eczema, Limping, Colics, Stomatitis, and Strangles. One mare was shot for paralysis, and a horse cast for bone disease.

A bull of the Woods and Forest Department recovered from Abscesses, a donkey cured from Limping.

A certain number of animals were examined in connection with prosecutions for cruelty entered by the Police Department. Owners were fined in most of the cases ; some of the animals were found fit for light work and others unfit for any kind of work.

Tuberculin Tests.

During the year 1916, milch cows of the suburbs of Port Louis and those of the different sections of the town have been tested for Tuberculosis. 10% of the cows were tested in the following places ; Pailles Village, Guiby, Vallée Pitot, Vallée des Prêtres and Port Louis town and were found free from the disease. In the rural districts a breeding herd was tested, a full dose of tuberculin injected to grown up animals, and ½ the dose to yearlings ; the percentage of tubercular animals including the suspects was about 35 o/o. The time at my disposal did not allow me to retest the suspects.

Foot-and-mouth Disease.

An outbreak of foot-and-mouth disease was detected at Moka and Flacq districts. The disease spread on working animals and all bovines of those districts were shortly after infected. In spite of all efforts to stop the infection, the different herds of cattle in the neighbourhood of the infected places were infected, quarantine cordons were placed and movements of animals confined. A certain number of animals was slaughtered and the disease being of a mild form is at present being controlled.

Meat Inspection.

Daily meat inspection was made at Rose Hill abattoir. 6 carcases were seized for tuberculosis, bruising, cachexia and general emaciation. Organs such as livers, mammary glands, lungs, &c., have also been seized for abscess, mammitis, tuberculosis, &c. 3 carcases were seized at St. Julien and Rose Belle abattoirs. All the abattoirs including the private slaughter houses of the Colony have been inspected, and were the object of a special report to the Director of Agriculture.

Surra.

During the year, outbreaks of Surra were detected on the following estates : Black River, La Lucie, Alma, Union Vale, Cluny, Les Palmiers, Mont Roches, La Retraite, Chebel and animals of 7 small planters. These affected animals were placed in quarantine and the local Soamin and Arsenic treatment applied with good results. After control, the affected animals were released from quarantine. I should however point out that in one case a breeding herd which was not far from infected places, was injected with Soamin and Arsenic as a preventive measure and no cases of the disease were detected therein.

F. E. LIONNET,

29th January, 1917. Government Veterinary Surgeon.

ANNEXURE V.

REPORT ON THE WORK OF THE

STATISTICAL DIVISION.

The following statistical documents were prepared during the year :—

May—Preliminary Estimate of the 1916–17 Sugar Crop.
Agricultural Statistics for 1915 Blue Book.
June—Revised Estimate of the 1916–17 Crop.
August—Average sale-prices and local consumption of Sugar Crop 1915–16.
December—Final Estimate 1916–17 Crop.

Land Tenure.

There were, at the beginning of 1916, 163,409 arpents under cane cultivation, against 159,172, at the same period of 1915, making an increase of 4,237 arpents. The total increase for the last four years has been 18,929 arpents. Out of the above total of 163,409 arpents under cane, 91,905 or 56.2% were estate plantations ; whilst 27,768 were cultivated by planters on estates, making a total of 119,673 on estates. The difference, i.e. 43,736 arpents, were cane plantations off estates.

The total Indian cane cultivation reached 65,197 arpents, or 39.9 o/o of the whole area under cane. The Indian cane cultivation was distributed as follows :—

(a) On morcellements in course of liberation, 10,888 arpents.
(b) On land held on lease or otherwise but belonging to estates, 12,092 arpents.
(c) Area grown by large Indian Estate owners, 7,974 arpents.
(d) Cane cultivation off estates, 34,243 arpents or 52.5 o/o of the whole Indian cane cultivation.

The district where the Indian plantations are the most extensive is Flacq, with a total of 14.786 arpents, representing 46.6 o/o of the total area under cane in the district. But the district where the proportion of the Indian cane cultivation is the highest is that of Plaines Wilhems, with 56.3 o/o.

The total Indian cane cultivation has passed from 50,067 arpents at the end of 1912, to 65,197, at the end of 1916, showing an increase of 15,130 arpents in four years.

Animals on Estates.

A marked decrease has been recorded. There were on the estates, at the beginning of 1916, 6,459 goats, against 8,092, at the same period of 1915, and 8,925, in 1914. The number of pigs was 4,361, against 5,526, in 1915 and 7,590, in 1914. A decrease was also registered in the number of horses and mules. There were on the estates, at the beginning of 1916, 19,863 horned cattle, against 21,305, in 1915 and 22,141, in 1914. It is to be noticed that whilst the number of cattle belonging to estates keeps at about the same level (14,111, in 1916 ; 14,430, in 1915 and 14,229, in 1913), that of cattle belonging to people residing on estates is fast decreasing (5,752, in 1916

6,875, in 1915 and 7,912, in 1914). The number of milch cows belonging to people on estates was 2,708, in 1916 ; 3,282, in 1915 and 4,096, in 1914. This decrease is principally due to the high price of dholl, but it must also be borne in mind that, on many estates, the number of indentured laborers is fast decreasing.

Sugar Crop.

The total sugar crop of 1915–16 was T. 214,518, while that of 1916–17 is estimated at about T. 208,000. Both are below the average, as may be seen by the following table which gives the average yearly sugar production of the Colony during the last four quinquennial periods :—

1895–99...	...	T. 156,774
1900–04...	...	172,838
1905–09...	...	204,734
1910–14...	...	226,500
2 last years (1915 and 1916) :	...	T. 211,260

The value of the 1915–16 crop was a little over fifty and a half million Rupees, and that of 1916–17 may be put down at at least the same figure, though the exact average sale-price of last crop's sugars cannot be ascertained before July or August next.

The following table is a comparison between the crop value of the 10 years preceding the war and that of the 3 last years :—

OUTPUT :

	Total Output.	Average.
1904–08... ...	T. 915,334	T. 183,067
1909–13... ...	1,107,142	221,428
1914–16 (3 last years)	699,878	233,293

VALUE :

	Average sale price.	Total Value.	Average.
			—000 omitted
1904–08...	...Rs. 7.47½	Rs. 136,850	Rs. 27,370
1909–13...	... 7.74	171,446	34,289
1914–16 ..	... 11.727	164,142	54,714

Previous to the last three years, the highest crop value of a single year was that of 1909, which reached Rs. 42,487,000 (T. 252,000 @ Rs. 8.43 per 50 kilos).

HENRI ROBERT,

10th February, 1917. Statistician.

ANNEXURE VI.

REPORT OF THE

EXPERIMENTAL STATIONS DIVISION.

(AGRICULTURAL INSTRUCTOR).

Demonstration Plots.

The establishment of Demonstration Plots and their control by the Department, provides a means of giving agricultural instruction to the small planter community, well adapted to the conditions of the Colony. Each plot is managed in co-operation with the Co-operative Credit Society of the district in which it is situated, and this fact considerably adds to their usefulness. The majority of the small planters being members of a Society, it is much easier than it otherwise would be to interest them in the plots, to get them together for any particular demonstration, and to disseminate information likely to be of use to them.

At the present time there are five Demonstration Plots : at Triolet (Pamplemousses), Petit Raffray (Rivière du Rempart), Long Mountain (Pamplemousses), Bon Accueil (Flacq) and Grand Bois (Savanne).

Triolet :—The plot is 1½ arpents in extent, one arpent being planted in cane whilst the ½ arpent is reserved for other crops. The canes were planted in September 1914 but, owing to dry weather conditions, great difficulty was experienced in obtaining a stand. The first cutting was made in September last and gave a yield of less than six tons.

The half arpent was planted up, half with manioc and half with sweet potatoes in January and both crops were reaped in September. The yields were :—Sweet potatoes 1,350 kilos and manioc 600 kilos. The yield of manioc should have been greater but it was found necessary to reap it before being fully matured owing to thievings. It would appear that in this particular district canes might be replaced, to a large extent, by other crops with advantage to the grower. Only in exceptionally favourable years can canes be expected to give even an average yield on non-irrigated land in the vicinity of Triolet. After seeing the crop at Triolet harvested for the last two years I have every reason to believe that the average yield obtainable by the small growers there is below rather than above that of the Demonstration Plot.

Petit Raffray :—This plot is 1 arpent in extent and is planted with canes. The first ratoons yielded a little over 21½ tons. I am pleased to be able to report that the methods of cultivation by the surrounding small planters have appreciably improved during the past year and the improvement appears likely to be carried further in the coming year.

Long Mountain :— This plot is 2 $\frac{1}{10}$ arpents in extent, one arpent is planted with canes which were cut in November, the yield being 17 tons. The cyclone of May did considerable damage, otherwise the yield would have been much higher. One quarter of an acre was planted with Pistache in January. These were harvested in July, the yield being 400 kilos. Potatoes were grown on ¼ acre and gave a good return, notwithstanding that they were attacked by an unidentified wilt disease which is prevalent in local areas in the district. Attacks of *Phytophthora infestans* were kept off by spraying with Bordeaux mixture.

Bon Accueil :—A plot of 1 arpent in extent. Three varieties of canes were planted in January : D.K. 74, No. 89 and No. 131. D.K. 74 and No. 131 are doing well, but No. 89 seems quite unsuited for the district.

Grand Bois :—One arpent in extent. Planted with cane, White Tanna, in February.

Field Demonstrations.

The spraying of potatoes with Bordeaux mixture was carried out at Cressonville, Long Mountain and Joli Bois.

At Cressonville difficulty was again experienced in persuading the growers to spray sufficiently early to prevent the disease doing considerable damage, and the methods of cultivation caused additional difficulties against effective spraying. It is proposed to establish a demonstration plot in this district for growing potatoes during next season and it is hoped that by this means it will be eventually possible to get the growers to take proper measures for combating the disease.

At Long Mountain, besides the spraying of the potatoes on the demonstration plot, some spraying was carried out with good results on the land of a small planter.

At Joli Bois a spraying demonstration was given, but the disease had been too firmly established to allow of much good being done.

Maize and Tobacco.

In view of the proposed erection of a maize-drying plant, much time was spent in the maize-growing districts on the coastal land in the south-east of the Colony, during the month of August.

During October I visited the tobacco plantations of the Colony and made proposals as to the selection of suitable spots for establishing experimental tobacco plantations by the Department. The places chosen were at Pamplemousses and Riche Terre.

Co-operative Credit Societies.

Much of my time has been taken up with the supervision of the Co-operative Credit Societies. Details respecting this division of my work will be given in the next Annual Report on the Co-operative Credit Societies.

FRANK BIRKINSHAW,
Agricultural Instructor & Inspector
Co-operative Credit Societies.

5th February, 1917.

ANNEXURE VII.

REPORT OF THE CHIEF OVERSEER.

REVIEW OF EXPERIMENTAL WORK AT ALL STATIONS.

At Pamplemousses Experiment Station 2,920 seedling canes were raised and planted out. A selection was made of 151 cane varieties of 1915 series, and 79 of 1914 series ; these were sent to Réduit for propagation.

Of the newly introduced varieties planted in May of last year the following gave the best results :—

B. 6308	yielded	12.8	kilos	per	hole.
Black Cheribon	yielded	10.5	kilos	per	hole.
D. 117	„	9.8	„	„	„
White Transparent	„	9.4	„	„	„
B. 3922	„	9.4	„	„	„
Sealy seedling	„	8.4	„	„	„
Mauritius Gingham	„	8.2	„	„	„

Controls of D. 109, D.K. 74, Striped Tanna and White Tanna gave respectively : 1.7, 9.7, 8.7, and 7.6 kilos per hole.

A yield of 67,360 kilos of canes was obtained from the plantations at " Mon Plaisir " ; the crop was sold to " Beau Plan " Estate at Rs. 16.50 per ton.

Tops of the most promising varieties were distributed to the neighbouring estates.

Varietal experiments were carried on with maize, manioc, sweet-potatoes, yams, ground nuts, beans, &c.

About five arpents of forest land near the Economic Section were cleared, two arpents have been planted with Bourbon Tobacco.

At Curepipe Station the tea and camphor plantations have made good progress. The imported pine-apples bore fruit for the first time, none however are as good as the local variety " Mauritius Pine ". The banana plantation suffered from the cyclone of May, most of the plants were broken or uprooted. They were attended to early and have started growth again.

The School Garden and Educational Section were kept in good order.

Labelling of trees in the gardens was continued. Repairs to roads, paths and kiosks were undertaken. The rose nursery was extended in order to increase the stock of plants for sale to the public.

Seeds of *Quebrachia Lorentzii*, received from the Director, R. B. Gardens, Kew, germinated well, the young plants will soon be ready for transplanting. Many seedlings from a white sport of the red seeded *Ardisia crenulata* were raised.

At Le Réduit Grounds the routine work was continued throughout the year.

At the Central Experiment Station, a plot of ground of one arpent was cleared of thorns, the land levelled and all surface stones removed. It was then planted with *Canavalia ensiformis* and *Mucuna utilis*.

Several small fields were re-arranged and converted into a large one having all the rows parallel.

Straw huts were erected for the cattleman and junior messenger.

Central Experiment Station—Réduit.

The expenditure and receipt have been as follows for the year :—

EXPENDITURE :

Salary of Assistant Overseer (August to December)	Rs.	140.99
Wages of Mason		250.00
„ Labourers, &c., ...		6,178.58
Purchase of fertilizers		195 00
„ seeds		73.70
„ food for animals		1,726.93
Erection of stone-wall		285.37
„ Huts (for cattleman and messenger) ...		176.75
Cane cartage		262.06
Purchase of barbed wire		86.40
„ Stock		825.00
Miscellaneous		1,238.08
Total ...	Rs.	11,438.86

RECEIPTS :

Sale of canes...	Rs.	5,763.65
„ fowls		180.00
„ eggs		261.25
„ seeds and plants		164.15
Sale and services of animals		350.00
Total ...	Rs.	6,719.05

Sugar Cane Experiments.

The cane crop yielded 279,790 kilos ; an increase of 90 tons over that of last year. The canes were crushed as in preceding years at " Mon Désert " Estate (St. Pierre) factory. 28½ tons were sent to " Highlands " Estate.

Tops of the following varieties were distributed to 48 estates :— Sealy seedling ; Java ; B. 306 ; 161 P. O. J. ; D. 117 ; Yellow Caledonia ; Red Mauritius ; White Transparent ; and Cheribon.

Sowings of cane arrows of D. K. 74; D. 109 ; D. 625 ; 55 P ; 131 P ; 89 P ; and Iscambine were made and 682 seedlings obtained.

Importation of New Varieties.

New varieties were imported from Paraguay, Tonga, Australia, Formosa and New Caledonia ; but unfortunately owing to long delay in transit, sometimes exceeding four months, the majority of cuttings were dead on arrival. It was possible to raise three wild canes from Tonga, and also two varieties " Mahoua " and " Malabar " received from the Colonial Sugar Refining Co., Sydney, N.S.W.

A collection of six best local canes was sent to the Deputy Director of Agriculture Nagpur, Southern Circle G.P., India.

Experimental Plots upon Estates.

Manurial experiments were continued with the ratoons on the experimental fields of the following estates :—Beau Champ, Belle Rive, Bagatelle, Britannia, Mon Désert (Carié), Riche-en-Eau, Terracine and with virgins at Plaisance Estate. The results obtained will be published in a separate bulletin.

The experimental field at " Sans-Souci " Estate was set on fire by sparks from a tramway engine ; the canes were reaped on the same day, and it was impossible to obtain a record of the yield of the different plots.

The varietal plantation begun at " St. Aubain " Estate in December 1915, is doing well. A selection of the most promising varieties will be made next year.

Stock.

Introduction of new breeds :—

On the 24th May, eight bulls and six cows of the Hissar breed were imported from India on board of B. I. " Onda ". The animals arrived in good

condition ; they were landed and sent to Réduit, where they were placed in quarantine in the stables near the Bacteriological Laboratory up to the 30th of June.

Of the 14 head of cattle, six were kept by the Department for breeding purposes, and the remainder distributed to the estates who had ordered them.

The distribution was as follows :—

Number.	Sex.	Remarks.
H.16	Bull	Sent to Cattle Station of Department of Agriculture.
H.170	"	
H.260	"	
H.11	Cow	
H.173	"	
H.181	"	
H.11	Bull	Sent to " Beau Rivage " Estate on the 3rd and 4th July 1916.
H.173	"	
H.184	Cow	
H.276	"	
H.157	Bull	Sent to "Alma" Estate on 4.7.16.
H.108	"	" " St. Antoine " on 6.7.16.
H.59	"	" to "Beau Champ" Estate on 10.7.16.
H.64	Cow	

Five Punjabi goats (3 males and 2 females) were also received by the same boat. Two kids were born on 29th July.

On the 3rd September, two bulls, two cows and one calf of the Mysore breed, and one bull, one cow and one Ongole calf were received per B.I. " Okla ". These animals were imported from the Madras Presidency, where they have long been famous.

The Ongoles are fine animals, of huge size and very docile, they are suitable for drawing heavy loads. The Mysore are of smaller build, quick, high spirited, and having hard feet are especially adapted to road work.

The two Madagascar bulls were loaned to the following estates.

Name.	Estate.	Period of loan.
Sakalav	Tamarin	1.1.16—30.1.16
Vohemar	Wolmar	1.1.16— 6.4.16

The Holstein bull served 8 milch cows of this Department ; 2 belonging to Barkly Asylum ; one to the Bacteriological Laboratory and 12 cows sent by the public, for which a fee of Rs 3 was paid per service.

Sheep.

10 lambs of the Nigerian Woolless breed were born during the year. One young ram " Ashanti " died on 12th April from convulsion and one ewe " Winneba " died from pleuresia. One ram, 3 ewes and 11 lambs were transferred to " La Ferme " in December.

The three rams were loaned to breeders. The following is a record of services :—

Name.	Estate.	Period of loan.
Challowa	Tamarin	1.1.16 to 9.3.16
Zaria	Ebène	14.1.16 to 16.1.16
"	The Vale	9.2.16 to 20.4.16
"	Beau Séjour	20.4.16 to 28.6.16
"	Deep River	28.8.16 to 27.9.16
Rogo	Palmyre	1.1.16 to 7.1.16
"	Médine	1.3.16 to 13.7.16

Dairy.

An experimental dairy for the supply of milk to Moka Hospital was begun. The cows were bought locally after having been previously tested with tuberculin.

The quantity of milk obtained was as follows :—

Month.	Litres.	Remarks.
January...	506	Produce of 3 cows.
February	478	,, 3 ,,
March	486	,, 3 ,,
April	439	,, 3 ,,
May	647	,, 4 ,,
June	778	,, 5 ,,
July	1,238	,, 8 ,,
August	1,218	,, 8 ,,
September	1,103	,, 8 ,,
October	930	,, 7 ,,
November	694	,, 6 ,,
December	632	,, 6 ,,
Total... ...	9,149	

The following is a statement showing expenditure and revenue of the year :—

EXPENDITURE :

Purchase of Stock... ...	... Rs.	3,058.12
,, ,, Food	...	403.98
Wages of cowmen ...	...	237.25
Miscellaneous	...	143.45
Total	... Rs.	3,842.80

REVENUE :

Value of milk (Rs. 11.90 per 100 litres)	... Rs.	1,088.79
Sale of calves	...	56.00
Services of bull	...	39.00
Total	... Rs.	1,183.79

Poultry.

There is a great demand for eggs and young birds. Many persons visited the poultry yard and numerous inquiries were made as to the proper methods of housing, feeding, &c.

The number of eggs laid during the year was as follows :—

	Eggs.	Average/hen/year.
White Leghorns (Australia)	... 374	124
Plymouth Rocks (South. Africa)	... 540	90
Black Orpingtons (Australia)	... 214	53
Buff Orpingtons (England)	... 163	41
Black Minorcas (South. Africa)	... 145	36
White Orpingtons (England)	... 155	22

An order has been sent to Australia for one pen each of Rhode Island Red, Black Orpington, and White Leghorn to replace the old birds received in 1914.

The following is the Poultry Stock Account for the three years during which they have been kept :—

EXPENDITURE :

Cost of buildings	... Rs.	1,344.62
Purchase of Stock	...	657.15
Upkeep of Stock	...	774.98
By profit	...	318.29
Total	... Rs.	3,095.04

RECEIPTS :

Valuation of buildings ...	...	Rs. 1,021.04
Value of Stock ...	...	342.00
Sale of eggs ...	...	1,044.00
Sale of Stock ...	...	688.00
Total	...	Rs. 3,095.04

Profit :—11.5 % on capital.

Miscellaneous.

IRRIGATION WITH SEWAGE WATER.

Experiments for growing canes under irrigation with sewage water were made on two acres near " Victoria Battery ", Cassis.

The land was cleared and holes prepared by end of April. Tops of White Tanna and D. K. 74 were planted on May 15th, but unfortunately many were killed by the cyclone of May 26th, on account of water collecting in the holes, the subsoil being impervious.

Supplying was made with tops of 55 P., B. 3,390 and D. K. 74 ; these were successful. The plantation is irrigated once a week and the canes are now growing well.

INTRODUCTION OF NEW COFFEE SPECIES.

Seeds of Coffea robusta, uganda, congoensis, abeocuta and de Wevrei were received from Mr. E. Jaeglé, Director, Station Agricole of Ivoloina, Madagascar. Half were sown at Pamplemousses and remainder at Réduit. Germination was good.

4,089 plants of last year's sowings were sold to the public for Rs. 109.34.

83 were given free for trial at " Mon Désert " (Carié) Estate and Farquhar Island.

C. A. O'CONNOR,
Chief Overseer.

10th February, 1917.

PAMPLEMOUSSES GARDENS

AND

EXPERIMENT STATION.

Overseer's Report.

The expenditure and receipts were as follows :—

EXPENDITURE :

Salaries ...	...	Rs. 2,160.00
Wages, Ornamentals	...	5,642.28
,, Economies	...	977.42
,, Canes ...	...	556.01
Supplies & Miscellaneous	...	975.46
Total	...	Rs. 10,311.17

RECEIPTS :

Canes...	... Rs.	1,111.43
Economic plants, flowers, &c.,...	...	43.47
Seeds	...	17.50
Wood, rafia, &c., ...	...	133.95
Fruits...	...	140.00
Total	... Rs.	1,446.35

EXPERIMENT STATION.

Sugar Cane.

The total cane crop amounted to 17,360 kilos. This was sold to Beau Plan Estate at Rs. 16.50 per ton. Of the new varieties planted in May 1915, the following were heaviest yielders : — B. 6,308, White Cheribon, D. 117, B. 3,922, White Transparent, Sealy, Yellow Caledonia. Tops of four of the above varieties were sent to Alma Estate (through Central Experiment Station). Different varieties were also supplied to the Northern Estates (8). The cyclone of May 26th did small harm fortunately ; on the whole the crop was fairly good.

Series 1913-1914 were also cut at the same time (October) and that of 1915 cut in December. Irrigation was carried out as often as possible.

Cuttings from seedlings of the following varieties were sent to Réduit for trial on a larger scale :—

Parent.	Year of sowing.	No. of cuttings.
55 P. ...	1913 ...	37
Fotiogo ...	1913 ...	29
D. K. 74 ...	1913 ...	29
Tamarin ...	1913 ...	14
D. 130 ...	1914 ...	52

in addition selected canes of the following were made into cuttings and sent to Réduit for planting :—

Parent.	No. of cuttings.
Striped Tanna	8
D. 74 & 131 P.	216
D. 625	78
D. 130	213
89 P.	98
D. K. 74	477
131 P.	66
33 P.	107
55 P.	822
87 P.	46

A plantation of 23 varieties, 25 holes of each, was made in May. The old Manurial Plot was used. 6 of the varieties are donations by Mon Rocher Estate. These varieties are :—

From Mon Rocher :	Controls :	
D. K. 74 White ...	D. K. 74 ...	... Sealy Seedling, Java.
„ green striped ...	B. 3,390 ...	... B. 4,596, 36 P. O. J.
„ red „ ...	Striped White Tanna	... B. 4,934, 100 P. O. J.
D. 130 striped ...	D. 109 ...	... B 6,308, 213 P. O. J.
M. P. 55 „ ...	Cheribon ...	... White Tanna, 826 P.O. J.
30 „ ...		

Sowings 1916.

A satisfactory result was obtained. 5,370 seedlings from 7 varieties were raised and, in December 1916 and early in January 1917, 2,920 of these seedlings were planted out at Pamplemousses. Failure was met with in trials of seeds of White and Striped Tanna.

The Northern Estates from which seeds were obtained were Mon Rocher, Espérance (Pamplemousses), Beau Plan, Labourdonnais, Beau Séjour (Mapou), The Mount; other estates were Britannia, Terracine and Bel Air (Savanne).

Pistache.

The following were results of 12 varieties tried :—

Variety.	No. of trials.	Yield kilos per arpent.
Local	3	480
Virginia running	3	436
Gambia	2	428
Virginia Bunch	3	424
Refusque	3	420
Virginie	3	420
Bunch	3	404
Zuivere Lyn	3	296
Spanish	3	288
Holle Tjikennenh	3	196
Spanish New	3	132
Tennessee	3	110

Out of 9 varieties tried on another plot, only 7 are worthy of records :—

Variety.	Yield kilos per arpent.
Bunch	668
Virginia Bunch	644
Virginie	560
Virginia Running	432
Refusque	372
Grant's Kaffir Bunching	280
Gambia	240

Voandzeia Madagascariensis (P. Malgache).

The crop was good. 40 kilos were the result of 12 rows of 35 pits each on an area of 70′ × 25′ planted in January and reaped in July : equal to 950 kilos per arpent.

Rodrigues Beans.

9 varieties were tried on beds 40′ × 4′ planted 12″ apart. No encouraging result was attained. Only 3 varieties appeared to stand disease attacks : Nos. 6, 7 and 9. Trial was again made on other beds on 1st July. This time results were better.

Maize.

The following were results of the maize plantations :—

Variety.	No. of trials.	Mean yield grain kilos per arpent.
White varieties planted in December 1915 :		
Local Yellow (control)	2	2,660
Marlboro	2	1,840
Brazos	2	1,760
Hickory King Rhodesian	2	1,633
White Maize	2	1,492
Johnson County White	2	1,433
Hickory King American	2	1,310
Iowa Silver Mine	2	1,256
Salisbury	2	1,003
Yellow varieties planted in December 1915 :		
Local Red (Control)	3	1,815
„ Yellow (Control)	3	1,457
Gele Menado	4	1,113
Yellow Congo	4	830
Eureka	4	810
Chester County Mammoth	4	742
Madoera	4	493

Rice.

There were the following varieties planted in February and reaped in June :—Rangaibe, 75 V 8, Mudu kiriel, Sudu Elwi, Mahatsoa, 6 V 1, 75 V 6, 75 V 5, 75, 75 V 1, 74 V 4, Lua Thom, 6, 75 V 7.

The yields varied from 29 to 720 kilos per arpent, being so low as to be untrustworthy for comparative purposes. This was due to ravages of birds.

The varieties : Rascaddam, Gurmatia, Chinoor, Kubrimohor, Early Nasik and Rajbalam failed ; this being due to late planting (March). The above were received from Nagpur.

Manioc.

The Manioc variety tests gave the following results :—

Variety.	Quality.	Kilos per arpent.
Icery ...	Sweet ...	14,663
Trinidad 2 ...	„ ...	14,130
Blue Top ...	Bitter ...	12,317
Constantin ...	Sweet ...	12,184
Cabesadura ...	Bitter ...	11,810
White Greenaway	„ ...	11,624
Greenaway (Red)	„ ...	11,464
Singapore ...	Sweet ...	10,131
Paloma ...	„ ...	9,864
Australie ...	„ ...	9,598
Trinidad 1 ...	„ ...	8,878
Manioc de table	„ ...	8,878
Blancite ...	Slightly bitter ...	8,491
F. M. States...	Sweet ...	7,998
Jackroe ...	Slightly bitter ...	6,351
Pacho 3 ...	Sweet ...	6,105
Negrita 17 ...	„ ...	6,292
„ 11 ...	„ ...	6,212
Small leaf ...	Bitter ...	5,998
Negrita 15 ...	Sweet ...	5,972
Trinidad 3 ...	„ ...	5,892
Pacho ...	„ ...	5,811
Negrita 12 ...	„ ...	5,332
Helada ...	Bitter ...	4,292

The following varieties, newly introduced from Antigua, were tried :—

Variety.	Quality.	Kilos per arpent.
Cassava Beureum	Sweet ...	11,224
French ...	Bitter ...	10,664
Negrita 12 ...	Sweet ...	9,331
Blue-beard White	Slightly bitter ...	7,811
Bitter ...	Sweet ...	7,011
Red Greenaway	Bitter ...	6,132
Brown Stick...	„ ...	6,132
Pacho 3 ...	Sweet ...	5,332
Butter Stick...	„ ...	5,332
Yellow Bell ...	Slightly bitter ...	4,985
White Greenaway	Sweet ...	4,372
White Top ...	Bitter ...	4,346
Blue Stick	„ ...	4,265
Smallings ...	Sweet ...	4,089
Mullings ...	„ ...	3,999
Rodney ...	„ ..	3,999
Bunch of keys	Bitter ...	3,999
New Green ...	„ ...	3,812
Palma ...	Sweet ...	3,812
Helada 15 ...	„ ...	3,732
Bobby handsome	„ ...	3,732
Blue Top ...	„ ...	3,546
Jackroe ...	Slightly bitter ...	3,546
Silver Stick ...	Bitter ...	3,119
White stick ...	„ ...	3,013
Negrita 11 ...	„ ...	2,319
Cotton Tree ...	Sweet ...	1,600

Sweet Potatoes.

The results of varietal tests with sweet potatoes were as follows :—

Local Varieties.	Kilos per arpent.
Gandia	5,254
Raisin	4,999
Yellow	3,996
White	3,034
Violet	2,035
Red	1,739
Imported varieties.	
Joe's	7,585
Red Bermuda	5,106
Sealy's	4,925
Big Strain Jersey	4,329
Pierson	3,700
Iskandatain	3,663
Turkey Claw	3,367
Florida	3,330
Egyptian White	3,219
„ Bebai	3,034
Pumpkin Jam	2,775
Red Jersey	2,738
Georgia Jam	2,664
Southern Queen	2,294
Jersey	2,146
Shanghai	1,665
Black Spanish	1,295

Yams.

12 varieties were under experiment (introduced 2 years ago from Antigua). Planted in July-August 1915, reaped in August-September 1916. The results were as follows :—

Variety.	Kilos per hole.
Danish	3.09
Light Red	2.97
Sealed top	2.37
Oriental	2.14
Lisbon	1.95
Cush-Cush	1.27
Bottle neck Lisbon	1.19
Fugue	1.07
Bugle horn	.75
Crop	.58
Cush	.57
Horn	.25

Tobacco.

This economic was planted on 2 acres (new land at Mon Plaisir). 8,525 plants per arpent planted at $2\frac{1}{2}' \times 1\frac{1}{2}'$. These were result of sowings of 10/10 and 30/10 in boxes and on beds, of Bourbon variety (blue tobacco). Transplanting began on 20/11, planting effected from 9/12 to 6/1/17. A Bourbon expert for conducting the experiment was engaged by Government. Rs. 219.95 were expended on preparation and planting up to 25.12.16.

Under supervision of the same expert 3 acres were planted at Riche Terre—planting material and labour (a few hands daily) being supplied by Pamplemousses Gardens—planting began on 29/12 and ended 26/1/17.

Trials were also made at Réduit (on ½ acre) 1,700 plants supplied on 21 and 22.12.16 and at Barkly Asylum Beau Bassin to which 2,000 plants were supplied.

Limes.

An unsatisfactory result was obtained. 1,700 plants were planted on 10 acres, plantation made in July at 12′ × 12′. General dampness of the soil and rocky subsoil proved unsuitable to development of the plants which are in bad condition. Insect attacks were also responsible from damaging the plants to a large extent. On 31st December some 500 plants were improving.

Mango Plantation.

The plantation as laid out in 1915 was the object of attention. No new varieties were added. Room is being prepared for receiving more of last year's preparation. A new lot of grafts (29 out of 40 prepared at Coromandel) are to be added. The varieties being : Aristide (6), Rosat (3), Auguste (7) and Jose (4).

Coffea robusta.

No improvement was observed upon the young plantations (250) of April 1914, very few of the plants being of fair size and remainder in a hopeless state. Failure is attributed to unsuitable locality.

Agave.

3 varieties are under trial : Sisal, Aloes Malgache and Aloes Creole. An equal number were put out in January, the latter being for control. Except Sisal which suffers in shady part of the plot, the plants are very promising.

ORNAMENTAL SECTION.

Lawns.

A considerable progress has been made. Useless plants in borders have been removed and replaced by grass and the work is being continued.

106,860 sq. ft. of new lawns have been added to the old existing area. A minimum of 4 scythers were active all the year over. At the busiest time of the year six were employed and necessity is felt to employ an additional two. Rs. 882.65 were spent as wages of scythers against Rs. 344.91 incurred last year, tasks 1 cent per 100 sq. ft. being adopted.

The old Murraya exotica hedge along west boundary to main entrance, 900′, has been cut back at 4′ above the ground and new lawns which will soon replace the inside borders begin to show a striking appearance. The fencing of this part is an object in view.

The ornamental nursery received continual attendance. Cuttings of various plants were put in and Palms of various sorts raised from seeds grown at the Station. A few were importations.

The ornamental plants in the nursery-sheds were attended to, overhauling done once. Heavy watering was necessary during the dry season (September-November).

Flower Gardens.

This Section was attended to. Dianthus, Asters, Antirrhinums and Linarias were plentiful. Coreopsis, Zinnias and Portulacca were also grown in summer. Seeds suppliers were Ryder & Co., and Th. Ware & Co. Local seeds were of great utility. Only a small success was met with seeds bought locally.

Miscellaneous.

Fencing 800′ has been done at the E. boundary of Gardens ; wooden posts fixed at 10′ distant and wire put up—the work to continue.

75 printed labels of the new pattern were fixed to trees. This is in addition to 132 put up last year. 313 unidentified trees were numbered and specimens are being collected for future identification at Kew.

The usual cleaning of drains was regularly carried out, there was very little pollution of waters by neighbouring sugar-mills this year.

The roads were kept clean and in good order. No remacadamising was done. Macadamising of the new road Mon Plaisir was done on a length of 150′.

One large and two small kiosks were rethatched, the work being done by contracts for the sum of Rs. 95.

Bud rot disease attacked most of the Cayenne Palms (Oreodoxa regia). The young plants appear to suffer less.

Herbarium & Museum.

As remodelled in 1915, they were carefully attended to. Old specimens were cleaned and names refreshed. The repairs to wooden cases were completed.

Buildings.

As stated in last year's report, repairs to quarters of Assistant Overseer were completed in January 1916 by the Public Works Department.

Weather Conditions.

Wind effects were felt on 1st and 2nd January. Rainfall 1.03 in. for 3 days. No serious damage was caused to trees and seedlings. Leaves fallen had to be cleaned for a week.

On 26th May a cyclone was recorded. Some 50 trees of various kinds were uprooted.

The following shows the rainfall recorded during the year :—

	Inches.
January	13.14
February	4.70
March	8.72
April	7.95
May	8.79
June	2.53
July	.86
August	1.90
September	2.88
October	4.54
November	.62
December	4.28
Total ...	60.91

Leave of absence.

The Assistant Overseer was on leave for 10 days from 15th November 1916.

The officer in charge of Beetles Destruction went also on sick leave for 15 days.

Plants and Seeds Exchanges, &c.

Plants and seeds were received from Buitenzorg, Nagpur, Station Agricole Ivoloina (Tamatave), Hagan Agricultural Station Bellay District, Madras, Cawnpore, Singapore, Kew, United States of America and Maritzburg, and consisting of ornamental and economic seeds chiefly.

Local donors were :—G. Régnard, F. Bijoux, the Municipality of Port Louis, Curepipe and Réduit Gardens, and L. Harel.

Supplies were made to Bilbao, Spain, Ceylon Agricultural Society, Seychelles Botanic Station and Maritzburg Botanic Gardens.

Local receivers were G. Régnard, the Municipality of Port Louis, The Forest Department, Bel Ombre Estate, H.Maingard, Dispensary Rivière des Anguilles, Phœnix Cemetery, Reformatory Rose Hill, Line Barracks Port Louis, Curepipe and Réduit.

Foliage plants were supplied free to : St. James Cathedral, Pamplemousses Catholic and Protestant Churches, the Municipality of Port Louis, Pamplemousses Convent, Hon. Maurice Martin, Government House, Port Louis, and Albion Dock Chapel—97 bundles in all.

Varieties of Maize, Rice, Pistaches, Manioc and Sweet Potatoes were supplied to Central Experiment Station.

There were 22,478 visitors recorded during the year and 555 picnics. Only one arrest was made, for stealing fruit so that behaviour of the public was very satisfactory.

L. M. LECLERC,
Overseer.

3rd February, 1917.

CUREPIPE GARDENS

AND

EXPERIMENT STATION.

The expenditure at this Station was as follows :—

Salaries	Rs.	600.00
Labour expenses		2,371.76
Miscellaneous		936.97
	Rs.	3,908.73

The receipts were as follows :—

Sale of Ornamental plants	Rs.	157.91
„ Economic „		4.00
„ Flowers		153.41
Miscellaneous		79.35
	Rs.	394.67

Economic Section.

The camphor plantation made in 1914 has been attended to, the plants are growing fairly well, having now reached an average height of 3 to 5 feet.

The banana plantation suffered much from the cyclone of 26th May last, most of them were broken or blown down. The whole field has been manured and forked, since which they are doing well and bearing fruits.

The pine-apple square was often weeded and forked. The plants are bearing fruits. The newly introduced varieties will after selection be propagated.

The tea plantation is growing well. The plants were twice pruned during the year, supplying was done when necessary. The soil has been forked up on the whole area and plants manured.

Ornamental Section.

The flower garden and rosery were carefully attended to. The beds in the former section were planted with assorted annuals, such as Asters, Dianthus, Pentstemon, Antirrhinums, Phlox, Stocks, Sweet peas, Helichrysums, &c., &c. The rosery after pruning and manuring flowered properly. The Azaleas have improved since they were cut back and thinned.

In the upper portion of gardens the large lawn just near the rosery was weeded and mown. The trimming of bamboo hedges was done throughout the year.

The collection of Camelias has been increased and an avenue has been planted with the young newly prepared layers. Many of the trees and shrubs were labelled in different parts of the garden.

Roads.

All the roads and paths were kept clean, those requiring repairs were remetalled.

Fernery.

The indigenous ferns and ornamentals were attended to. The roof of the kiosk was completely repaired. New seats and a table were made for the convenience of visitors. The kiosk in the vicinity of the Camelia square was thatched with vacoa leaves.

Nursery.

The area of the Nursery has been increased by the removal of Camphor trees. Part of it is planted with wild rose stocks for grafting purposes. Many varieties of rose cuttings were made and planted on beds. A stock is kept of palms, azaleas, dracaenas, and other ornamental plants for sale to the public.

Educational and School Garden Section.

The educational section consisting of an area set apart for botanical classifications and also of a portion used as a model School Garden, attracted a considerable number of visitors during the year.

The classification section was well planted and labelled during the year. The School Garden was well kept with ornamentals and economics of interest. The paths on both sections were completely macadamised.

Rainfall.

The total rainfall during the year was 113.32 inches.

F. LECLERC,

31st January, 1917. Overseer.

LE RÉDUIT GROUNDS.

The expenditure incurred upon the upkeep of Le Réduit Grounds was as follows :—

Salary of Overseer	...	... Rs.	840.00
Wages of Sirdars & Laborers	...	...	3,031.07
,, Prison Guards	...	...	360.00
Miscellaneous ...	...	...	1,608.93
		Rs.	5,840.00

Staff :—The laborers were reduced by 3 men and 3 boys at the end of July. The maintenance of Le Réduit Grounds comprises works connected with

(a) The Grounds as a whole,
(b) Flower Gardens,
(c) Kitchen Gardens.

A cyclone occurred on the 26th May, the effects of which greatly impaired for a time the general aspect of the Grounds whilst in the Flower and Vegetable sections all the plants on foot suffered the maximum injury, and there were required very serious efforts to restore the Grounds within the least possible time and to reduce as far as possible the effects of the gale on the flower and vegetable gardens.

Grounds.

During the year the following works were executed :—

(a) The filling up at different places of a total extent of 60,000 square feet of depressed surfaces,—the depression varying from a foot to 4 feet in depth and the planting of grass " Herbe bourrique " over a total area of 120,000 square feet.
(b) Alteration of the courses of many paths leading to the French Gardens, making new avenues and laying on of macadam over all the French Gardens paths.
(c) Alteration in the situation and aspect of a lawn, in accordance with instructions issued and plans prepared by His Excellency. The work began on the 15th August and ended by mid-December ; it was carried out chiefly by prisoners under the close supervision of the Overseer and consisted in the digging in or filling up of ground—general levelling of the spot and final turfing.
(d) Constant attendance to lawns, drives, avenues, hedges—tennis, croquet and golf courts ; canals and ponds.

Flower Gardens.

These include (1) a large enclosed area planted with roses and annuals of various kinds for the purpose of supplying cut flowers to Government House ; (2) Flower beds in the vicinity of Government House and around the different tennis courts ; (3) Green houses for ferns and orchids ; besides a large collection of ornamental plants, comprising crotons, dracaenas, aralias, panax, palms, &c., for the decoration of verandahs and halls at Government House. Each of the aforesaid sections received due attention and there was a fair display of assorted flowers and ornamental plants all the year round.

Kitchen Garden.

All the different works relating to vegetable gardens such as preparing of soil, sowing, transplanting, watering and weeding &c., were duly and methodically carried out. Vegetables were daily supplied to Government House. The cyclone of May caused sensible damages to the plantations then afoot—and the crops either failed or suffered noticeable reduction. There was however but a momentary check. On the whole the vegetable crops were successful and abundant.

Of 11 different kinds of peas cultivated, the following four clearly established their superiority over the rest in yielding :—Duke of Albany, Telephone, Prolific Marrow and A1.

Phytalus Smithi.

Between January 1st and April 27th, 7,449 beetles were captured on Le Réduit Grounds and vicinity.

A. VALASOIS,

Overseer.

ANNEXURE VIII.

REPORT OF THE BOARD OF AGRICULTURE, FOR 1916.

The Board of Agriculture, established under article 14 of Ordinance No. 30 of 1912, consists of :—

His Excellency the Governor, *President.*
The Director of Agriculture, *Vice-President.*

The following members were appointed under Notification No. 10 of January 18th, 1916, for the year 1916 :—

The Hon. J. A. Duclos.	L. H. de Froberville, Esq.
,, Sir H. Leclézio, K.C.M.G.	Maxime Guimbeau, Esq.
,, M. Martin.	A. Hugnin, Esq.
G. Antelme, Esq.	T. W. Innes, Esq.
E. Carcenac, Esq.	F. N. Langlois, Esq.
A. Dalais, Esq.	G. Mayer, Esq.
Th. L. d'Arifat, Esq.	G. Régnard, Esq.
H. G. Ducray, Esq.	Ad. Wiéhé, Esq.
W. P. Ebbels, Esq.	Mohabeer Teeluck.

Meetings of the Board of Agriculture were held on July 12th, and on November 15th, 1916.

July Meeting :—At the July Meeting, presided over by His Excellency the Governor, the following printed reports were laid before the Board :—

(1) The Annual Report on Co-operative Credit Societies for 1915.
(2) Bulletin No. 6, G. S. " The Irrigation of Sugar-Cane in Mauritius ".
(3) Bulletin No. 7, G. S., Animal Diseases Regulations.
(4) Bulletin No. 3, Sc. S., " Composition of Milks in Mauritius ".
(5) Bulletin No. 2, Sta. S., " Sugar-Cane varieties in Mauritius ".
(6) A Report on the work of the New Corona Decorticating Machine at Médine.
(7) A Summary of Laboratory Investigations to December 31st, 1915.
(8) Soil Survey of Pas Géométriques and of Part of Grand Port.
(9) Camphor Investigations.
(10) Report on Tuberculin Tests in Port Louis.
(11) Preliminary Estimate of the 1916-17 Sugar crop.
(12) Revised Estimate of same, after the May cyclone.
(13) Agricultural Section (Section X) of the 1916 Blue Book, as prepared annually by the Statistician.

The following matters received consideration :—

(1) Results of Phytalus Smithi Survey at Pamplemousses.
(2) Introduction of Cattle from India.
(3) Alcohol for Motor Traction.
(4) Drying and Storage of Maize.
(5) Searby system of shredding Canes.
(6) Freight difficulties for Aloe Fibre.

November Meeting :— At the November Meeting, presided over by His Excellency the Governor, the following reports were laid before the Board :—

(1) The Annual Report of the Department of Agriculture for 1915.
(2) A second Report on the work of the New Corona Fibre Machine.
(3) A summary of Laboratory Investigations to June 30th, 1916.
(4) A Report from the Statistician on Sale Prices and Consumption of Sugar for the 1915-16 campaign.

The following matters received consideration :—

(1) Establishment of Kiln Drying of Maize at Mahébourg.
(2) Experimental Cultivation of Tobacco.
(3) Measures to be taken for increasing the Live-Stock in the Colony.
(4) Foot-and-Mouth disease.
(5) Vanilla Ordinance.

HENRI ROBERT,

14th February, 1917. Secretary.

ANNEXURE VIII.

PHYTALUS SMITHI DESTRUCTION.

STATEMENT showing Total Number of Beetles and Larvæ destroyed at Pamplemousses during 1916.

Month.	Mon Rocher.	Mount.	Beau Plan.	Espérance.	Small Planters.	Maison Blanche.	Petite Rosalie.	Grande Rosalie.	St. André.	Souvenir.	Gardens.	Total Beetles or Larvæ.	Total Spent.* Rs.	C.
January ...	610,892	3,869,950	5,065,523	3,084,975	3,048,490	...	16,279	166	4,268	2,893	37,135	15,740,571	3,543	28
February ...	92,085	448,175	468,500	513,900	450,300	...	4,826	282	17,380	6,982	...	2,002,430	1,058	10
March ...	46,790	55,410	346,225	197,540	181,580	...	967	231	14,460	7,321	...	850,524	981	...
April ...	42,800	30,100	329,100	139,875	142,575	...	...	...	...	...	...	684,450	1,385	94
May ...			24,300	12,375	7,325	...	...	...	...	...	...	44,000		
	†6,200	†594,900	†388,100	†1,194,300			†29,150					†2,212,650	§854	78
June ...	..	†139,000	...	†1,450,000	...	...	†120,100	...	...	...	†2,700	†1,711,800	§690	80
July ...	...	†67,600	..	†2,038,750	†15,800	...	†10,600	...	...	...	†8,000	†2,140,750	§616	03
August ...	...	†3,000	...	†187,400	...	...	...	...	...	...	...	†190,400	§148	08
September ...	...	...	...	†77,800	...	...	...	...	...	...	...	†77,800	§130	31
October ...	76	3,220	211,875	403,305	194,230	...	...	...	...	...	...	812,706		
				†29,000								†29,000	§714	37
November...	57,335	728,685	2,283,595	2,596,217	590,665	151,525	33,510	236	5,112	3,881	21,931	6,472,692	2,292	98
December...	935,040	7,889,250	15,782,510	12,667,655	4,701,600	2,297,000	338,510	322	29,640	12,545	59,425	44,713,497	10,242	52
Total ...	1,785,018	13,024,790	24,511,628	19,615,842	9,316,765	2,448,525	394,092	1,237	70,860	33,622	118,491	71,320,870	§22,658	19
	†6,200	†804,500	†388,100	†4,977,250	†15,800		†159,850				†10,700	†6,362,400		

* Including Staff, laborers and sundries. † Number of larvæ captured. § Including expenses for larvæ